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145.1.2 -- FAFSA 8.0 Performance Test Status Report Presentation

November 11, 2003

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Tested Business Processes

Six FAFSA 8.0 Business Processes have been tested to 11/07/03:

Fill Out a FAFSA	✓
FAFSA Corrections	✓
FAFSA Renewals	✓
FAA Renewals	✓
W012 (Mainframe Edit and Submit)	✓
W030 (Mainframe Lookup)	✓
FAA Corrections	X ***Pending retest**
Student Access	X ***Pending retest**

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Tested Infrastructure

CSS Failover Test

- CSS redundancy changed from Adaptive Session Redundancy (ASR) to Box-To-Box Redundancy
- Network cord unplugged from master and successfully failed over to backup
- Network cord re-inserted into master, backup shut down and master successfully restored
- One web server shut down and traffic successfully transferred to single web server.
- Web server re-established and traffic balanced between both web servers

Network Test

- Added DNS servers to Load Runner boxes to reach Akamai servers
- Completed test from browser on Load Runner box to reach akamaiperf.fotw.ed.gov
- Saturated SNET ISP with Akamai performance test

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Major Accomplishments

Issue: CSS - Connections failing at various points in the application under load and failover of CSS or web server made the FAFSA performance site non responsive

Resolution:

- Approximately 80 hours dedicated to resolve CSS issues
- Testing with HTTP 1.0 eliminated the problem, due to non persistent connections, but HTTP 1.1 is most widely used and more efficient than HTTP 1.0
- Cisco reported a known bug with Adaptive Session Redundancy (ASR) which limits the number of ports available for CSS
- ASR changed to Box-To-Box redundancy (Active/Passive)
- Tested application with 3000 concurrent users for 45 minutes and issue did not reappear
- Decision made to go forward with CSS for FAFSA 8.0 production

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Major Accomplishments

Issue: Mainframe – CICS Region utilizing 100% of CPU with less than 10 CICS transactions/second

Resolution

- Testing indicated that indexes had not been re-added to the DB2 database when created
- After indexes added, problem narrowed down to new MYAD module
- Code changes to MYAD slightly improved performance
- New indexes added to the DB2 database and the SQL in MYAD module was updated.
- Tested application and achieved 70 transactions/second with 40% CPU utilization

Major Accomplishments

Other Major Accomplishments:

- Corrected framing errors by moving Load Runner boxes from Bay 350 network to CAT 6000 network
- Sessions now invalidated in the FAFSA Corrections business process
- New hardware added to performance test environment
- Akamai included in the performance test environment
  - Additional network testing to take place

Top 5 Open Issues

No.	Action Item	Severity	Responsible Lead
1	CICS region became non-responsive and failed during a test of the Student Access business process with 1500 users.	High	CSC
2	CKB4 / CKB5 abends on the mainframe appeared in both the performance test and production environments.	High	CSC
3	QPMON (a component of QPASA, which is a monitor for WebSphere MQ) was observed intermittently using as much as 70% of a single processor for brief periods of time interspersed with relatively long idle periods of time.	Medium	CSC
4	There are certain aspects of Workload Management (i.e., Channel Initiators) on the mainframe that need to be considered/addressed to ensure that the performance test environment will not impact the production environment in the future.	Medium	CSC
5	Using Akamai in the Cycle 11 performance test caused traffic to use the backup interface to the Internet. Traffic was going both ways at a consistent rate of 25 MB/sec, and the backup network only has a consistent network allowance of 15 MB/sec with bursts up to 30 MB/sec.	Low	CSC

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Performance Test Continues…

- Currently executing capacity planning performance testing
- Will retest the Student Access and FAA Corrections business processes
- Will continue testing remaining business processes
  - Request for Application Status
  - Pin Registration
  - Pin Web Services
  - ISIR
- Will perform failover testing
  - Web server failover
  - Application server failover
  - Clone failover

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Conclusion

- Successfully tested six of twelve business processes
- Major issues resolved for both CSS and CICS region on mainframe
- Performance test on schedule to complete remaining business process testing